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Syphilitic Affections of the Ear.

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SYPHILITIC AFFECTIONS OF THE EAR.

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To judge from the accounts of recent writers on otology, and from my own experience, cases of syphilitic disease of the ear are quite rare. Thus, upon searching through my records of cases from March, 1870, to the present time, I find that I have seen only 30 cases of disease of the ear in which the functional or organic disturbances could fairly be attributed to syphilis.[1] These figures, however, must not be accepted as furnishing a correct measure of the share which syphilis takes in the production of diseases of the ear. I have no doubt that the percentage is in reality much larger, but the difficulty of recognizing the syphilitic element in the case, and the habitual practice of such patients to conceal the fact of their having contracted this disease, render it an easy matter for the physician to err in his diagnosis and to overlook many cases which really belong under the head of syphilis. The scantiness of the material, however, is not the only thing which makes it difficult for the physician to gain a satisfactory knowledge of syphilis as it affects the ear. Infirmary patients, who supply the chief quota of cases of aural syphilis, visit the institution as a rule only once or twice. They are very apt, also, not to seek relief until the affection has made decided progress. One can readily appreciate, therefore, how fragmentary and disconnected the observations made upon this sort of material must be. Then, too, the records themselves are often very imperfect. With a single assistant and sometimes a large number of impatient patients, it is not an easy matter to record all those points which should be recorded. At the same time even fragmentary pictures of disease

[1] Thirty out of a total of 3,976, or a little over three-quarters of one per cent.

may prove of value; they sometimes supply a missing link, and at all events they often spur up others to study and report their own cases. As such a fragmentary contribution, then, the following reports of cases and running comments are offered.

Among the thirty cases referred to above, I find only two in which the auricle was the seat of pathological changes that could fairly be considered as pathognomonic of constitutional syphilis. They are the following:

Case I.—Male, ætat. 26, May 27, 1874. Syphilis (primary) four years ago. Sore throat and eruption on face last December. Three weeks ago he began to have some pain in the left ear, without tinnitus or noticeable deafness. During the past week the pain has been more pronounced, and there has been a slight discharge from the outer canal. Tragus and outer portion of meatus red, swollen, and tender, especially superiorly. Deep ulceration of the auricle at the commencement of the fossa helicis, just above the orifice of the external auditory canal. It measures fully half an inch in diameter, and extends down to the cartilage.

The ulcer was cauterized with the stick of nitrate of silver, and three leeches were applied in front of the tragus. (Patient did not return.)

Case II.—Male, ætat. 32, in rather poor physical condition, June 16, 1875. He is now suffering from syphilitic disease of the nasal bones or cartilages, the contour of the nose being already disfigured. A large part of the fossa helicis of the auricle is occupied by a dry scab, from beneath one edge of which a little pus escapes. The removal of this scab brought to view a roundish ulcer about the size of a three-cent piece. The ulcerated surface, which was not depressed below the surrounding surface of healthy skin, seemed to be composed of a soft, succulent tissue, in places apparently papilliform in structure. A single application of a saturated solution of nitrate of silver caused the ulcer to heal entirely in the course of a few days. It should be stated, however, that the patient had been taking iodide of potassium for some time previously.

The following three histories are descriptive of lesions located in the external auditory canal:

Case III.—Male, ætat. 44, April 8, 1874. Patient "caught cold," as he thinks, three weeks ago. One week ago his left ear began to ache, and the same day he noticed a discharge from the left meatus. Since then there has been a constant discharge. On examination, the left membrana tympani is found to be red, very much swollen, and perforated anteriorly and inferiorly. The lower wall of the outer half of the external auditory canal is ulcerated for a distance of about half an inch. The ulcer extends outward upon the auri-

cle, and has quite well-defined limits. Pharyngeal mucous membrane characteristically red and swollen (syphilitic pharyngitis). Chancre one year ago. (No further data.)

Case IV.—Male, ætat. 28, of strong frame and apparently vigorous constitution. He states that in February, 1878, he first noticed a discharge from the right ear. It came on without any pain, lasted for a few weeks, and then stopped of itself without treatment. In the early part of the summer the discharge returned and has persisted up to the present time (Aug. 7th). Of late there has also been some soreness of the ear. No noticeable deafness. Examination of the ear reveals the following condition: The orifice of the meatus is almost completely obliterated by the presence of an elevated patch of what seems, at first sight, to be granulation tissue. The dividing-line between this patch, which completely encircles the orifice, and the healthy skin of the auricle, is sharply drawn, the edges of the elevated portion being quite abrupt. A watery discharge oozes from the lower part of the granulating surface. By pulling upon the auricle upward and backward, a narrow orifice with jagged edges is brought into view at the centre of the mass of granulations. Upon a closer inspection, this apparently granulating surface was found to be in reality a mass of minute vegetations or papillomata, most of them being of a pale pinkish hue, but a few of a very bright red color. At the actual orifice of the meatus, some of these growths were found to be quite large in comparison with the greater number—as large, *e. g.*, as a hemp-seed, or even larger. The external auditory canal itself, so far as the eye could see with the aid of a small speculum and reflected light, was filled with similar vegetations. Between the larger masses were numerous smaller and more pointed growths, like those observed at the orifice. The membrana tympani was of course invisible. When touched with the probe, the larger of these growths were found to be considerably harder than ordinary granulation tissue. Some of them looked precisely like the warts seen on the fingers of young children, the skin covering them being pale and tough like natural skin. The smaller papillary growths, and one or two of the larger ones near the orifice, were less firm in structure, and bled readily when manipulated with the probe. The gland lying upon the mastoid process of the same side was enlarged to such an extent as to cause a visible swelling in this region. The occipital glands were also moderately enlarged. A diffuse discoloration of the skin, with desquamating surface, was observed on the hairy scalp, and also to a slight extent on the forehead of the left side. Two well-marked "mucous patches" occupied the left half of the velum palati. On questioning the patient, it was ascertained that he had contracted the primary lesion about fifteen months previously.

Treatment was not begun until September 4th, when he was given the oleate of mercury (Squibb's), a drachm to be rubbed into the skin every night, and the bichloride of mercury, one thirty-second of a grain to be taken internally

three times a day. The ear to be syringed twice a day with lukewarm water. The larger vegetations which were within reach were snipped off with the scissors; the smaller ones were touched with nitric acid.

Sept. 26. The dose of the bichloride was increased to-day to one-sixteenth of a grain three times a day. The patient was also given some calomel with which to dust those vegetations which were within his reach.

Oct. 2. Patient feels better in every way, and says that the otorrhœa is diminishing in quantity. The patch of vegetations around the orifice of the external auditory canal has perceptibly diminished in height and in vividness of color.

Oct. 23. Patient has gained thirteen pounds in weight since the 4th of September. He has been very faithful in using the remedies prescribed. The squamous eruption on his forehead has almost disappeared. The orifice of the external auditory canal has been steadily increasing in size. Very little change, however, is perceptible in the condition of the deeper portions of the canal. By aid of the probe it was ascertained to-day that the innermost section of the meatus, close to the membrana tympani, was smooth and apparently free from vegetations. The "mucous patches" are still visible on the velum. Iodide of potassium is to be added to the bichloride mixture in the proportion of ten grains to each dose.

Nov. 6. The wart-like growths in the external auditory canal have become less prominent; they encroach less upon the calibre of the canal, and the intermediate bright-red pointed condylomata have lost their bright color and well-defined outlines. Nitric acid (undiluted) applied firmly to one of the more prominent excrescences near the external orifice. The pain which followed lasted but a minute or two, and then entirely disappeared. Appetite good. No evidence of sponginess of the gums.

Nov. 13. Application of nitric acid repeated to-day. The orifice is now increasing in size quite perceptibly, and the deeper condylomata—simply under the influence of the constitutional treatment—have now shrunk away to mere elevations of the skin. The discharge is also very much less than at first. The inunctions are still kept up. The improvement in the condition of the meatus has been more marked during the past week than during any previous week since treatment was begun. No appreciable change in the condition of the "mucous patches" on the soft palate. Dose of potass. iodid. increased to twenty grains three times a day.

Nov. 20.—Patient has now gained twenty-six pounds in weight. The discharge from the ear has ceased, and almost every trace of the condylomata has disappeared. Membrana tympani entire. (Case still under observation).

Case V.—Female, ætat. 25, of apparently strong constitution, Feb. 24, 1874. At Christmas time (1873) she had—so far as could be inferred from her own account—an acute attack of inflammation of the middle ear, associated

with a purulent discharge from the external auditory canal. Three weeks ago the ear became painful again, and leeches were applied near the orifice to relieve the pain. In the course of a few days the orifice seemed to become entirely closed by the swelling of the parts. The pain increased and she became quite drowsy. Dr. E. B. Bronson, who was called in to see her at the time, divided the mastoid integuments very freely with the knife. This afforded the patient great relief from her suffering, and all symptoms of drowsiness soon disappeared. Two days later (Feb. 24) I made an examination of the ear, and found the meatus closed by a number of small wart-like growths, situated on opposite sides of the canal. These growths are very firm in texture, being covered apparently by true skin. The largest is as large as a pea, and springs from the base of the tragus by a broad base. A thin watery pus bathes these masses, and their presence renders it impossible for one to see the deeper portions of the canal or the drum membrane. By aid of the probe, however, I was able to ascertain that these growths were not connected with any sinus or region of exposed bone. As the patient was under treatment at the time for a large ulcer of the vulva, it was believed that these growths were of syphilitic origin. (Patient was not seen again.)

In very many cases of deafness dependent upon syphilis, it is impossible to ascertain whether the loss of hearing is due wholly to changes that have taken place in the conducting apparatus of the middle ear, or to these in part and also to an implication of the auditory nerve. The most we can do, by way of classification, is to place in one class those cases in which the pathological condition of the middle ear (including the membrana tympani) appears to be sufficiently marked to account for the whole of the loss of hearing; in a second, those cases in which the nearly or fully normal condition—so far, at least, as we can ascertain by inspection and by auscultation during the act of inflation—of the middle ear contrasts strongly with the diminution in, or total loss of, the power of hearing; and finally, in a third, those cases in which the middle ear presents unmistakable evidences of pathological changes, but yet not sufficient to explain wholly the marked diminution in the hearing. The first class would comprise cases of what might fairly be designated "syphilitic disease of the middle ear;" the second, cases of "syphilitic disease of the auditory nerve";[1] the third, cases of

[1] The labyrinth is usually assumed to be the seat of the disease, and in most cases probably correctly. (This point will be considered briefly farther on.)

"syphilitic disease of the middle ear and auditory nerve." It must be borne in mind, however, that a case which at first belongs very properly in the first class, may very soon pass into the second or third. The adoption of such a subdivision of the cases into three classes is therefore purely a matter of convenience and orderly arrangement, a scientific subdivision based upon pathological anatomy being hardly possible in the present state of aural pathology.

Seven of the thirty cases belong in the first of these three classes. While only one or two of them are of special interest, the others are also given in as brief a manner as possible, for the reason that it seems to me desirable to furnish as complete a picture as I can of the *whole* material observed. The rarity or frequency of the different lesions will thus be better appreciated.

Case VI.—Male, ætat. 24, Dec. 15, 1875. Difficulty of hearing, referable chiefly to the left ear. Duration, eight weeks. Manubrial and peripheral vessels of the drum membrane congested; elsewhere the membrane is opaque, of a milky hue, and slightly œdematous. Left tonsil very much enlarged and of a bright red color; crypts filled with a dirty-looking secretion (ulcerated?). Patient gives a history of syphilitic poisoning. (No further data).

Case VII.—Male, ætat. 35, in fair health, Aug. 25, 1875. Discharge from right ear of recent origin. No history of an acute beginning. Membrana tympani covered with thick pus, red, swollen, and united with the mucous membrane of the promontory; syphilis contracted eight months previously.

Treatment.—Iodide of potassium to be taken internally, and a weak solution of acetate of lead to be instilled into the external auditory canal. Patient never returned.

Case VIII.—Male, ætat. 23, laborer, Dec. 8, 1875. Pain in the left ear during the past twenty-four hours. Membrana tympani thickened and of a pinkish hue. The upper portion of the inner end of the external auditory canal and the soft parts forming the upper boundary of the drum membrane are uniformly red, and so much swollen as to present almost the appearance of a forming abscess. Syphilitic ulceration of velum palati. Treatment was begun, but the patient did not return a second time.

Case IX.—Male, æt. 25, in poor general condition, Nov. 26, 1873. About one week ago he experienced pain in the left ear, followed soon by deafness, ringing in the ear, and a discharge of bloody serum. All of these symptoms still persist; the discharge from the ear, however, being now purulent in character instead of serous. Examination with the speculum and re-

flected light shows the membrane to be red, swollen, perforated anteriorly, and covered with pus. Tenderness on pressure over the mastoid process. The patient hears the ticking of a watch only when it is pressed against the auricle. Extensive syphilitic ulceration of the soft palate. Chancre three years ago, followed by exanthem, pharyngitis, etc.

Treatment.—Free incision through the membrana tympani, as the existing perforation does not seem to afford a sufficiently free escape for the pus formed in the middle ear; three leeches to be applied behind the ear; syringing with warm water.

Dec. 1. Patient had only one leech applied, instead of three. Pain still persists. Mastoid integuments are now red and swollen. Three leeches ordered.

Dec. 3. The patient was greatly relieved for several hours by the local depletion. The pain then returned and is now quite severe again. Free incision through the mastoid integuments. Poultices to be applied at short intervals.

Dec. 10. Patient is slowly improving. Otorrhœa has ceased. Only occasional twinges of pain.

Dec. 17.—Entire freedom from pain. External wound has nearly healed. (No further data.)

Case X.—Male, ætat. 37, in a somewhat cachectic condition, June 11, 1874. Last November he had a double otitis media purulenta in connection with a bad syphilitic sore throat. Hearing power has rapidly diminished since then, and he is now so deaf that I am obliged to speak to him in a very loud tone of voice. Constant tinnitus. Right membrana tympani and adjacent walls of meatus red and swollen. Left membrana tympani perforated; in other respects it is in the same condition as the right. Soft palate has formed adhesions with the posterior wall of the pharynx, and is otherwise disfigured by syphilitic ulceration. (No subsequent data.)

Case XI.—Male, æt. 24, well-nourished. Oct. 9, 1878. Double otorrhœa of several weeks' standing. No history of anything like an acute beginning, nor does he remember to have had otorrhœa before the present attack. Syphilitic ulceration of velum; diffuse redness and swelling of entire fauces. Right external auditory canal filled with pus. The membrana tympani, after the removal of the pus, was found to be of a bright red color, very much swollen, and perforated in two spots—below and in front, and posteriorly near the umbo. A whitish material filled the posterior perforation. In a word, the drum membrane presented precisely the same appearance (color, condition of ulceration, diffuse swelling) as did the soft palate. No note was made of the condition of the left ear. (Only one subsequent visit.)

Case XII.—Male, ætat. 37, a gardener, in good physical condition, Sept. 25, 1872. Seven years ago he first noticed that his hearing was growing less sharp than usual. Constant tinnitus aurium. Slow increase of deafness. At the present time I am obliged to raise my voice a little, in order to make my-

self heard by the patient. The ticking of my watch is heard by him at a distance of three inches on the right side, while on the left side he can only hear it when the watch is pressed against the ear. Pharyngeal mucous membrane pale and "sclerosed." Both drum membranes opaque and somewhat whitish in color, but perfectly normal in position.

Treatment (twice a week).—Inflations, according to Politzer's method; mopping out the naso-pharyngeal space with a twenty-grain solution of nitrate of silver.

Oct. 9. Pharyngeal mucous membrane is now red and somewhat swollen.

Nov. 20. Ten days ago, according to his account, he began to suffer from pain in the left ear. Three days ago a serous discharge made its appearance, and has continued since. On examination, the left drum membrane is found to be red and swollen, with a small perforation in the anterior inferior quadrant. The handle and short process of the hammer are no longer distinguishable. No bulging of any part of the membrane.

Nov. 26. Perforation has apparently healed. Otorrhœa has ceased. During inflation the air is heard through the auscultation tube to enter the middle ear in a continuous current, without râles. The drum membrane is still red, swollen, and parchment-like on its outer surface.

Dec. 4. To-day the right drum membrane is found to be red and swollen. No history of pain in the ear.

Dec. 7. Redness of right drum membrane less marked.

Dec. 14. Condition of the left drum membrane has again changed. It is now of a bright red color, moist, more decidedly swollen than at the last visit, and covered in front with a thick white mass, suggestive of a growth of vegetable fungus. Examined under the microscope, however, this mass was found to be composed entirely of large flattened epithelial cells. Perforation again visible in the anterior inferior quadrant.

Dec. 18. Swelling of left drum membrane has again diminished. Perforation is barely recognizable as a black point.

Jan. 15, 1873. Pharyngeal mucous membrane is still red and swollen. Patient complains of constant pain in the ears. He can no longer distinguish the ticking of a watch in either ear. A perforation has also formed in the right drum membrane. A well-defined circular white spot has developed, since the last visit, in the posterior superior quadrant of the left drum membrane.

Jan. 29. Pain continues. A second perforation now exists in the left drum membrane; it is located at the site of the circular white spot noticed at the last visit.

March 5. Patient has not visited the Infirmary since the last date. His general condition has very much changed during the interval. He is emaciated. His face wears constantly an expression of pain. Pulse rapid and feeble. He states that he has suffered a great deal since his last visit with pain throughout

the left side of the head. Discharge from the left ear copious and fetid. Total loss of hearing in the left ear. The tones of a vibrating tuning-fork are referred to the right ear, even when it is placed upon the left temporal bone. At the innermost portion of the left meatus the upper cutaneous wall of the canal appears to be in a collapsed condition. By means of a probe this collapsed portion can be lifted back nearly to its natural position, though not sufficiently at all points to bring the membrana tympani into view. When passed farther in, the probe encounters quite an extensive region of denuded bone. No special change has taken place in the right ear, except that the hearing is so poor that we are obliged to communicate with him by writing.

June 25.—Patient is barely able to walk about without assistance, owing to his feeble condition. Left side of face paralyzed. Tongue swollen and ulcerated. He admits to-day, for the first time, that ten years ago he had a chancre, followed soon by sore throat and other characteristic symptoms. He has been an inmate of one of the large general hospitals of the city for several weeks past, and declines to enter the Infirmary. (This was his last visit to the institution.)

The third class includes a larger number of cases than either of the two others, viz., eleven. Each of these, however, is so nearly a repetition of the others, that I shall introduce very brief sketches of only two.

Case XIII.—Male, ætat. 24, Jan. 3, 1874. Steadily increasing deafness during the past few weeks. "Cold in the head" during the past two months. Both drum membranes dull and opaque, but occupying a natural position and free from evidences of active inflammatory action. Mucous patch on one tonsil. Chancre in September, 1873. (Patient did not return.)

Case XIV.—Male, ætat. 35, in excellent general condition, Sept. 13, 1874. Quite rapid and decided diminution in the hearing power of the right ear. Syphilis of recent date. Pharyngeal mucous membrane red and swollen. Right membrana tympani dull, milky, and a little sunken. (Patient returned only once.)

To the *second class*, finally, belong the following seven cases, in all of which it is fair to assume—from the comparatively normal condition of the middle ear and from the history of the case—that the labyrinth or its immediate vicinity was the seat of the pathological changes that caused the deafness.

Case XV.—Male, ætat. 31, of fair constitution, April 17, 1874. Hearing in right ear poor for many years past. Contracted syphilis eighteen months

ago. About ten months ago he began to lose the hearing of the left ear. At the present time he is very deaf. On examination, I find the left drum membrane to be nearly normal in appearance. (Patient returned only once.)

Case XVI.—Male, ætat. 29, in good general condition, March 24, 1877. (Consultation with Dr. D. B. St. John Roosa.) Sudden and almost complete loss of hearing about two months ago. Chancre eighteen months previously. No other evidence of syphilis, with the exception of an ill-defined ulcer on the right side of the tongue, near its tip. Nothing worthy of note in the condition of the middle ears. Antisyphilitic treatment (by Dr. Roosa), consisting of inunctions with the oleate of mercury and the internal administration of iodide of potassium in large doses (reaching 6 drachms in a single day on one occasion), brought about, in the course of a few weeks, a very marked improvement of the hearing.[1] (Full details with regard to this case will be found on p. 528 of the fourth edition of Dr. Roosa's *Treatise on the Ear*.)

Case XVII.—Female, ætat. 40, a teacher, somewhat anæmic, Oct. 6, 1877. Totally deaf in the right ear since childhood. Two weeks ago she began to notice slight deafness in the left ear, together with occasional pains and a sense of tightness in the ear. Left drum membrane apparently normal. The ticking of a watch heard at a distance of four feet. Right drum membrane very much disfigured by inflammation that occurred during childhood. Pharynx healthy. As there are no indications for treatment, she is advised to wait.

On the 23d of October she returned. The hearing power had been steadily and even quite rapidly diminishing. Tinnitus constant. On the 12th she began to experience a sensation of dizziness, which soon became so marked that she could only walk with the assistance of a friend. No change in the condition of the drum membrane. Treatment: iodide of potassium in fifteen-grain doses three times a day.

Oct. 30. Slight improvement in the hearing; dizziness the same. Dose of iodide of potassium increased to twenty grains three times a day.

Nov. 28. Hearing is now, so far as she herself can perceive, as acute as when I first saw her on the 6th of October. The ticking of the watch is heard at a distance of four feet. The dizziness has also disappeared entirely, though a little tinnitus still remains. All treatment is to be stopped.

From her physician, Dr. Charles Packard, I learn that he has had occasion to treat her for a suspicious periostitis on both tibiæ. The deafness was there-

[1] It should be stated here that this patient had already been subjected to what might be termed an ordinary course of antisyphilitic treatment. Little or no benefit, however, resulted. It was not until the more vigorous antisyphilitic plan of treatment was instituted—the plan which Dr. Roosa was the first, I believe, to employ in these cases of sudden and complete deafness—that decided benefit was obtained.

fore probably due to a syphilitic affection of the labyrinth or its immediate neighborhood.

Case XVIII.—Male, ætat. 21, somewhat anæmic, Oct. 5, 1878. (Consultation with Dr. Samuel Sexton.) Thirteen months ago he suddenly lost his hearing in the left ear. Twelve weeks ago he lost the hearing power of the right ear, and is now totally deaf, at least so far as hearing spoken words is concerned. He denies ever having had a chancre or eruption of any kind. He admits that he has had "sore throat" at different times during the past two years, and also occasional severe headaches. About one year ago he had an iritis, for which iridectomy was performed by a London surgeon. Slight enlargement of the occipital glands. Both drum membranes are opaque and apparently thickened. No evidence of active irritation, of the presence of fluid in the middle ears, or of closure of the Eustachian tubes.

Nov. 5. Dr. Sexton informs me that since the last note the patient has been taking regularly the iodide of potassium and red iodide of mercury internally, and the mercurial ointment by inunction, and that he is now decidedly under the influence of mercury. Little or no improvement, however, has taken place in the hearing. (Patient returned to his home in Massachusetts.)

Case XIX.—Male, ætat. 35, of vigorous constitution, Feb. 3, 1871. Chancre ten years ago, followed by secondary symptoms. About the same time he had a discharge from the left ear, which gradually passed away, leaving him totally deaf in that ear. Of late he has begun to be troubled with tinnitus and deafness of the right ear. Gait is noticeably staggering. Examination shows the left drum membrane to be cicatricial throughout the posterior half. The right membrane is somewhat sunken. A peculiar wine-colored circular discoloration occupies the posterior inferior quadrant of the membrane. Soft palate and nose show evidences of former syphilitic disease. The tones of the vibrating tuning-fork are promptly referred to the right ear, no matter at what portion of the skull the fork is placed. Treatment was directed to his naso-pharyngeal catarrh, which was then quite active, but it failed to produce any improvement in the hearing.

On January 20, 1872, he again consulted me. The right ear was then already totally deaf. Staggering gait still present. (No further data.)

Case XX.—Male, ætat. 14, poorly nourished and very anæmic. He is apparently totally deaf. The mother states that he has never had either earache or discharge from the ears, but that when seven years old he manifested symptoms of disease of the nose and soon afterward almost completely lost the power of hearing.

On examination, both drum membranes are found to be much thickened and unusually whitish in color, except at the periphery and along the handle of the hammer, where the tissues present a bright red appearance. Velum palati red, swollen, and deeply ulcerated on the right side. Depressed cicatrices

in each submaxillary region. Bridge of nose appreciably enlarged, through disease of the nasal bones or cartilages. The boy breathes entirely through the mouth. (Hereditary syphilis?)

On Oct. 9th he began taking the bichloride of mercury, in doses of one-thirty-second of a grain three times a day, in combination with iodide of potassium, ten grains to the dose.

On the 23d, inunctions with the mercurial ointment were prescribed in addition to the internal treatment.

Oct. 30th. All redness of the membrana tympani and external auditory canal has disappeared. The velum, too, has lost all evidences of inflammatory action, and, apart from the defect, presents a perfectly natural appearance. The boy seems brighter and less anæmic, though still perfectly deaf.

Nov. 13. General condition steadily improving. (Case still under observation).

Case XXI.—Male, ætat. 45, in fair general health, March 22, 1876. Eighteen months ago he became paralyzed on the left side of the body, and also noticed that his hearing in the left ear was not as acute as usual. Already six months prior to this he had noticed that he sometimes saw double. Five months ago he quite suddenly—in the course of a few minutes, he says—lost the hearing in his right ear. This was associated with more or less dizziness, which has steadily increased from that time to this. He admits having had syphilis at the age of thirty-five. On examination, both drum membranes are found to be in a nearly normal condition.

He was given iodide of potassium in slowly increasing doses, but he ceased to visit the Infirmary before any appreciable improvement had yet taken place, or could reasonably have been looked for.

The question which suggests itself in this connection, and which almost every writer on otology has raised, is this: Are the pathological changes which syphilis produces in the ear sufficiently distinctive of the disease for us to recognize them at once as syphilitic, without the aid of collateral evidence? Schwartze, who has carefully looked into all the works that had been written on the subject prior to 1869,[1] and who gives a summary of his own observations, cautiously avoids answering the question directly. He describes five classes of cases which have come under his own observation, and in which he believes that the functional or organic changes were due to constitutional syphilis. In the first class he includes cases of syphilitic ulceration of the meatus. The pecu-

[1] Archiv für Ohrenheilkunde. Vierter Band. Würzburg, 1869, p. 253 et seq.

liarity of the ulcer, in these cases, lay in its annular shape (surrounding the orifice) and in its being covered with a dirty white secretion. He adds that in the external auditory canal polypoid granulations undoubtedly occur, which must be considered as a local manifestation of constitutional syphilis. "As granulations of this character, however, are exceedingly common in non-syphilitic individuals affected with a purulent inflammation of the ear, it becomes a very difficult matter to decide in a given case whether the growths are or are not of a specific nature. From the anatomical examination alone, no definite conclusion can be drawn. The characteristic papillary structure of the tumor, which sometimes presents the appearance of a perfectly developed condyloma, is also observed in cases where syphilis is not to be thought of for an instant." Roosa [1] states that syphilitic affections of the auditory canal are extremely rare, he himself not having seen "affections of the auditory canal which could be said to be the result of the poison of syphilis." Burnett [2] also seems to have had the same experience. On the other hand, August Stoehr has published an article [3] on the subject of "broad condylomata in the external auditory canal," from which it appears that he has seen no less than fourteen such cases. Gruber, also, describes [4] broad condylomata in the external auditory canal.

In both the cases (IV. and V.) that I had an opportunity of observing, the picture presented to the eye, when the external auditory canal was first examined, was so characteristic and striking that I at once recognized it as of syphilitic nature. In no other form of ear disease have I ever seen the external auditory canal studded with broad-based and rather tough growths, interspersed with smaller, more pointed, and more delicate ones. In Case III. the picture presented was much less striking; and yet even here the observer, if familiar with diseases of the ear, could hardly fail to be struck with the contradictory state of things. In

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[1] Treatise on Diseases of the Ear, Second Edition, p. 144.

[2] A Practical Treatise on the Ear. Philadelphia, 1877.

[3] Archiv für Ohrenheilkunde, 1869. Fünfter Band, p. 130 et seq.

[4] Ueber Syphilis des Gehörorgans, Wiener Med. Presse, 1870. Nos 1, 3, and 6.

children, for example, the external auditory canal is very apt to become ulcerated by the constant flow of an irritating secretion over its inner surface; but in adults this rarely happens, and then almost always in connection with a chronic discharge from the ear. Ulcers in the form of fissures or cracks at the very orifice of the canal (eczema) are occasionally met with in adults who are entirely free from any syphilitic taint.[1] I have also sometimes seen a small circumscribed ulcer (or patch of granulation tissue) corresponding to the imperfectly healed orifice of an abscess located in the walls of the external auditory canal. Finally, I have seen a similar condition of ulceration (or condition of granulation) in the osseous portion of the canal, close to the membrana tympani, as a result of the pressure caused by a calcareous mass. In all of these cases however, an adequate local cause was obvious, without recourse to the assumption of a syphilitic origin. In Case III. a comparatively large and well-defined patch of granulation tissue had developed in a canal which presented almost no other evidence of inflammation, and which had been subjected to no other irritating influence than the flow, for the period of a week, of a purulent fluid over its surface. Unlike the condylomata, the ulcer, in and of itself, presented nothing typical or distinctive of its syphilitic nature. It was the presence of this well-defined lesion without evidence (either in the surroundings or in the history of the case) of an adequate cause, which led me to suspect the existence of constitutional syphilis.

Writers on diseases of the ear are, I believe, nearly unanimous in the statement that lesions characteristic of syphilis are never observed in the middle ear or membrana tympani. While I do not feel justified as yet in disputing this statement with any great degree of positiveness, owing to the scantiness of the material which

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[1] Dr. Ladreit de Lacharrière, in the "Annales des Mal. de l'Oreille et du Larynx" for May, 1875 (vide Burnett, Treatise on the Ear, p. 271), describes a form of acute syphilitic otitis which is characterized by a fissured and cracked condition of the skin of the external auditory canal, and by a copious and very disagreeable discharge. Such a condition as this, however, is totally different from the fissured ulcers observed in eczema. No other authority, as far as I know, has described anything similar to the condition observed by de Lacharrière.

has come under my observation, I cannot help feeling that, with increased experience and a closer study of this particular class of cases, we shall in time learn to recognize in these parts textural lesions as distinctively characteristic of syphilis as are most of its external manifestations. Take for an example Case XII. The development of a second perforation in the left membrana tympani, through a melting process similar to that observed so frequently in the velum palati, is totally different from anything that I have ever observed in any case of non-syphilitic inflammation of the middle ear. In Case XI. probably this same melting away of a limited area of the drum membrane took place, though in that case I only had an opportunity of observing the process at its stage of completion. There were no evidences of pressure from within in either of these cases; in both, the loss of substance could only be described as a melting away or death of the tissues. In Case XII. furthermore, the subsequent course of the disease—the development of caries and facial paralysis, with no evidences of interference with the free escape of the pus formed—was certainly not in harmony with the ordinary course of a non-syphilitic otitis media purulenta acuta.

With regard to the cases in which the auditory nerve, either before or after its entrance into the labyrinth, is the part believed to be principally affected by the constitutional disease, I find again that my material is far too scanty and too imperfect to justify any special conclusions. In these cases it is generally assumed that the labyrinth is the seat of the syphilitic lesion. It is quite possible, however, that the lesion may be in the middle ear, or in the auditory nerve before it enters the labyrinth. It is a peculiarity of poisoning by syphilis that almost any spot in the body may become the seat of well-marked textural changes, such as increased vascularity, infiltration, proliferation, or death. The parts in the immediate neighborhood may exhibit no evidences whatever of participation in the process. Thus, for example, the mucous membrane lining the niche for the round window, or the membrana tympani secundaria itself, may become congested and very much swollen, without narrowing of the Eustachian tube, without the exudation of fluid into the middle ear, and without the slightest change in the condition of the drum membrane — or, in other words, without

any discoverable evidence of disease in the middle ear. The swelling of these parts, and especially of the secondary tympanic membrane, cannot take place without producing pressure upon the fluid of the labyrinth (semicircular canals as well as cochlea). This lesion, therefore, would be competent to produce the hardness of hearing, the staggering gait, and the dizziness observed in Case XVII., for example. If not arrested by treatment, the swelling might increase to such a degree that the displacement outward of the foot-plate of the stirrup would no longer compensate for the pressure exerted at the round window upon the contents of the labyrinth. In that event we should have not only a mechanical interference with the working of the cochlear apparatus, but also an intralabyrinthine anæmia (due to pressure) which would very soon cause disturbances in the nutrition of the delicate structures of the cochlea. All degrees of hardness of hearing might in this way be produced.

Lesions at the oval window, by obstructing the action of the stirrup, would likewise be competent to diminish very materially the power of hearing. Thus, even complete anchylosis of the stapedio-vestibular articulation might result from syphilitic disease.

Finally, still another possibility must be taken into consideration. The auditory nerve, after its separation from the facial in the meatus auditorius internus, passes through the minute openings in the cul-de-sac of the meatus and enters into numerous bony channels in the modiolus. The most insignificant pathological changes in these minute channels—changes which it might be difficult to detect even with the microscope—would suffice to inhibit the functional capacity of the bundles of auditory nerve filaments contained within them.

In the present state of our knowledge of aural pathology, therefore, we are hardly justified in using the expression "labyrinthine disease," except in those cases where demonstrable lesions are found in this part of the ear at the post-mortem examination. At the same time it is difficult to suggest a better term, even for temporary purposes.